BOGDANOVA, A.K.

Distribution of Mediterranean waters in the Black Sea. Okeanologiia
1 no.6:983-991 '61. (MIRA 15:1)

1. Sevastopol'skaya biologicheskaya stantsiya imeni Kovalevskogo.
(Black Sea--Hydrology)

KROPACHEV, L.N.; BOGDANOVA, A.K.

Significance of winds in the Black Sea in the proper organization and operation of seaside resorts. Vop.kur., fizioter.i lech.fiz. kul't. 27 no.2:159-162 Mr-Ap '62. (MIRA 15:11)

1. Iz gidrometeorologicheskoy observatorii Chernogo i Azovskogo morey v Sevastopole.

(BLACK SEA--SEASIDE RESORTS) (BLACK SEA--WINDS)

BOGDANOVA, A.K.

Characteristics of the hydrological regimen of the Mediterranean Sea in warm winters of 1960-1961 and 1961-1962; based on observations from the E/S "Akademik Kovalevskii." Trudy SBS 17:159-191 '64. (MIRA 18:6)

BOGDANOVA, A.K.

Role of the southern and northern thresholds in the water exchange through the Bosporus. Okeanologiia 5 no.5:834-840 '65.
(MIRA 18:11)

1. Institut biologii yuzhnykh morey AN UkrSSR.

ACC NR: AT7003619 (N) SOURCE CODE: UR/3090/66/000/015/0045/0068

AUTHOR: Bogdanova, A. K.

ORG: none

TITLE: Hydrological characteristics of the Red Sea and the Gulf of Aden according to the observations of the expedition ship *Academician Kovalevskiy*

SOURCE: AN SSSR. Mezhduvedomstvennyy geofizicheskiy komitet. X razdel programmy MGG: Okeanologiya. Sbornik statey, no. 15, 1966. Okeanologicheskiye issledovaniya, 45-68

TOPIC TAGS: OCEAN PROPERTY, RESEARCH SHIP, hydrographic survey, ~~hydrologic instrument~~, marine meteorology, ~~salinity~~, ~~monsoon~~, OCEAN DYNAMICS / RED SEA, GULF OF ADEN, SUEZ CANAL

ABSTRACT: This abstract describes the hydrological characteristics of the Red Sea, the Gulf of Suez, the Suez Canal, Bab-el-Mandeb, and the Gulf of Aden. The observations were conducted by the r/v *Academik A. Kovalevskiy* from December 1961 through January 1962 and from October through November 1963. The track of the r/v *Akademik A. Kovalevskiy* expedition is indicated on a chart. Several diagrams of the temperature and salinity distribution, T-S curves, and current velocity are given for the Red Sea and the Gulf of Aden. This paper analyzes the influence of the exchange of water through the Bab-el-Mandeb and describes the formation of hydrological conditions of the Red Sea and those of the intermediate layer of high salinity waters in the Gulf of Aden. The waters of the Gulf of Aden enter the surface horizons and the inter-

Card 1/2

UDC: none

ACC NR: AT7003619

mediate layers (90—100 m to 300—400 m) of the Red Sea resulting in a richer sea life at these depths. The author defines the influence of monsoons and the effect of the "piling-up" and "upwelling" circulation in the regions of the Strait of Bab-el-Mandeb and the northern part of the Red Sea upon the exchange of water through the Canal and the Gulf of Suez. An analysis is given of the formation conditions of steady areas of upwelling and the enrichment of the upper layers with nutrients in the Gulf of Aden. In the summer these areas include the northwest coast of the gulf near Aden, and in winter, the area of Cape Guardafui in the southeast. The author examines the distribution of Red Sea waters in the Gulf of Aden based on temperature, pressure, and salinity data: the distribution characteristics of the Red Sea waters vary according to temperature, salinity, and rate of motion and mixing with waters of the intermediate layer of the Gulf of Aden. The article investigates the mechanism of formation of the Red Sea water masses and estimates the values of the salinity—water balance in this formation. Discharge rate computations were made of the upper and lower currents in the Strait of Bab-el-Mandeb using the salinity balance equation and data on the salinity of the deep waters of the Red Sea for 1958, 1959, and 1960. Orig. art. has: 9 figures and 3 tables. [BA]

SUB CODE: 08/ SUBM DATE: none/ ORIG REF: 008/ OTH REF: 011/

Card 2/2

BOGDANOVA, A.K., inzh.

Peculiarities of butt welded joints of pipes from 12KhMF perlite steel. Energ. stroi. no.1:96-101 '59. (MIRA 13:2)

1.Moskovskiy filial institut "Orgenergostroy"
(Pipe, Steel--Welding)

S/137/61/000/012/093/149
A006/A101

AUTHOR: Bogdanova, A.K.

TITLE: Peculiarities of welding 12ХМФ (12KhMF) perlite steel pipe butts

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 12, 1961, 11, abstract 12E64 (V sb. "Energ. str-vo", I (II), Moscow-Leningrad, 1959, 96 - 101)

TEXT: Information is given on results obtained in welding perlite 12KhMF steel pipe butts with the aid of ЦЛ-14 (TsL-14) and ЦЛ-20БУ (TsL-20BU) electrodes on a-c and ЦЛ-20А (TsL-20A) electrodes on d-c. The following conclusions are drawn: 1. To prevent martensite and crack formation, preheating for pipe welding can only be recommended at sub-zero temperatures of the surrounding atmosphere. 2. When welding steam-superheater pipes with TsL-20A electrodes of 3 mm in diameter, cracks are formed in the weld joint. Therefore these electrodes can be recommended only after their improvement. 3. Weld joints of steam-superheater pipes must be heat-treated under the following conditions: heating to 970-980°C; holding at these temperatures for 1.5 - 2 min. per 1 mm of pipe wall, with subsequent cooling in asbestos packings. 4. The welding of steam-conduct-

Card 1/2

ing pipes with 540°C wall temperature must be carried out with TsL-20 electrodes on d-c with heating prior to and during welding at 250 - 300°C. Welding is performed under optimum conditions, with a short arc, small beads with joints covered over 25 - 30 mm, in particular in the flow portion of the butt. 5. TsL-20BU electrodes produce pores in overhead position of the joint; therefore the use of these electrodes is only permissible after their improvement. 6. Considering the fatigue strength of weld joints produced with TsL-14 electrodes, the latter can be recommended for the butt-welding of 12KhMF steel beam-superheater pipes with 540°C wall temperature, and steam conducting pipes woth 510°C wall temperature. Heat treatment conditions of welded pipe joints after welding are given.

V. Tarisova

[Abstracter's note: Complete translation]

Card 2/2

NIKOLAYEVA, Ye.A.; BOGDANOVA, A.M.; STEPANOVA, Z.A.

Microbiological purity of solutions for injections and eye drops. Apt. delo 14 no.1:64-68 Ja-F '65. (MIRA 18:10)

GRINFEL'D, A.A.; NIKOLAYEVA, V.L.; BOGDANOVA, A.P.; ANGELI, R.N.;
GOL'DENBERG, V.A.

Study of sources and ways of the distribution of epidemic hepatitis (Botkin's disease). Report No.1: Seasonality and periodicity of the occurrence of epidemic hepatitis during 11 years (1953-1963) in various age groups of the population of Odessa. Zhur.mikrobiol., epid. i immun. 42 no.12:29-34 D '65. (MIRA 19:1)

1. Odesskiy institut epidemiologii i mikrobiologii imeni Mechnikova i Odesskaya gorodskaya i Primorskogo rayona Odessy sanitarno-epidemiologicheskaya stantsiya.

Cand Med Sci

BOGDANOVA, A. S.

Dissertation: "Two-Stage Vaccine Therapy of Brucellosis."
2/2/50

Academy Med Sci USSR

SO Vecheryaya Moskva
Sum 71

BOGDANOVA, A. S.

Undulant Fever

Brucellosis. Med. sestra no. 4, 1952.

<u>Monthly List of Russian Accessions</u>, Library of Congress November 1952. UNCLASSIFIED.

BOGDANOVA, A. S.

USSR/Medicine - Infectious Diseases Aug 52

"Brucellosis," A. S. Bogdanova, Moscow

"Med Sestra" No 8, pp 13-18

Research in continuing on the possible use of antibiotics in treatment of brucellosis. Penicillin has proved ineffective, promising but confusing results have been attained with aureomycin and chloromycetin. Vaccinotherapy has retained its leading position in combating brucellosis. A new and effective method is the 2-stage intraveneous injection of the vaccine. The new method allows injections of reduced doses of vaccine, i.e., 100,000 - 300,000, - 500,000 of killed bacterial

221T32

bodies. Such old and tried methods as roentgenotherapy, physiotherapy, and hydrotherapy also have been retained. Transfusions of blood as well as of dry plasma and erythrocyte mass, injections of vitamins, glucose, etc., are also indicated in the treatment of brucellosis. Soviet scientists (school of P. F. Zdrodovskiy) within the past few years perfected a method of prophylactic immunization of human beings. Observations of this method over a period of years demonstrated the vaccine to be well tolerated by the patients, and effective in the prevention of brucellosis. It is now being widely used when appropriate epidemiological indications exist.

221T32

BOGDANOVA, A. S., (Cand. Med. Sci.) and RUDNEV, G. P., (Prof.)

"Levomycetin in Typhoid Fever Therapy," pages 72-90 of the book "Treatment of Infectious Diseases," Moscow, 1953

Presented 6 March 1953 (Moscow) at the All-Union Conference on the Control of Dysentery sponsored by the Ministry of Public Health SSSR.

Translation No. 474, 19 Oct 1955

BOGDANOVA, A.S., kandidat meditsinskikh nauk

Dysentery and ascariasis. Sov.med. 20 no.12:37-41 D '56. (MIRA 10:1)

1. Iz kafedry infektsionnykh bolezney TSentral'nogo instituta usovershenstvovaniya vrachey (zav. - prof. G.P.Rudnev) na baze Moskovskoy gorodskoy klinicheskoy ordena Lenina bol'nitsy imeni S.P.Botkina (glavnyy vrach. prof. A.N.Shabanov)
(DYSENTERY, etiol. and pathogen.
ascariasis, mutual aggravation)
(ASCARIASIS, compl.
dysentery, mutual aggravation)

Chair Infect. Diseases of Cent. Inst. Ad. Train. Physicians
on the grounds of Moscow City Clinical Hosp. im S P Botkin

BOGDANOVA, A.S.

Problem of complications in rabies vaccination. Sov.med. 23 no.12:
117-123 D '59. (MIRA 13:4)

1. Iz kafedry infektsionnykh bolezney (zaveduyushchiy - prof. G.P. Rudnev) TSentral'nogo instituta usovershenstvovaniya vrachey (direktor M.D. Kovrigina) i Moskovskoy gorodskoy ordena Lenina klinicheskoy bol'nitsy imeni S.P. Botkina (glavnyy vrach - prof. A.N. Shabanov).
(VACCINATION compl.)
(RABIES prev. & control)

BOGDANOVA, A.S., kand.med.nauk

Differential diagnosis and compound treatment of chronic dystentery aggravated by lambliasis. Lech. infekts. bol'. no.3:111-119 '57.
(MIRA 14:5)

(DYSENTERY) (GIARDIASIS)

BOGDANOVA, A.S., kand.med.nauk

Side effects of synthomycin in the treatment of typhoid fever.
Lech. infekts. bol'. no.3:156-165 '57. (MIRA 14:5)
(CHLOROMYCETIN) (THPHOID FEVER)

BOGDANOVA, A.S., kand.med.nauk

Biomycin in the treatment and prevention of complications in the urinary organs of patients with typhoid and paratyphoid infections. Lech. infekts. bol'. no.4:105-113 '60. (MIRA 14:5)
(AUREOMYCIN) (URINARY ORGANS—DISEASES)
(TYPHOID FEVER) (PARATYPHOID FEVER)

BOGDANOVA, A.T., inzh.

Spanning of the Irtysh River using a "pioneer" method. Energ. stroi. no.42:39-41 '64. (MIRA 18:3)

1. BOGDANOVA, A. V.; VARTANYAN, A. B.; PROKOP'YEVA, L. N.

2. USSR (600)

4. Cotton Spinning

7. Using cotton waste in spinning.
Tekst. prom 12 no. 10, 1952

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

BOGDANOVA, A. V.

"Synthese de l'heliotropine en partant du pyrocatechine." Soriguine, A. A., Simanovskaja, et Bogdanova, A. V. (p. 980)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1938, Vol. 8, No. 11

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

BC

13

Synthesis of p-methylbenzyl acetate from toluene. P. F. SOROKIN and A. V. BOGDANOVA (J. Appl. Chem. Russ., 1938, 11, 1217—1221).—A mixture of PhMe, 35% aq. CH_2O, and $ZnCl_2$ is saturated with HCl (4 hr. at 35°, then 4 hr. at 75°), to give p-$C_6H_4Me{\cdot}CH_2Cl$, which with KOH–EtOH yields p-methylbenzyl Et ether, b.p. 75°/8 mm., hydrolysed by boiling 5% $NaHCO_3$ to p-$C_6H_4Me{\cdot}CH_2{\cdot}OH$. This with Ac_2O–H_3PO_4 or AcOH–H_2SO_4 at room temp. yields the acetate. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

BOGDANOVA, A. V.

USSR/Chemistry - Ethers Mar 1947
Chemistry - Halogen compounds

"Investigation of the Properties and Conversions of Alpha-Halogen Dialkyl Ethers," M. F. Shostakovskiy, A. V. Bogdanova, 10 pp

"Zhur Obshch Khim" Vol XVII, No 3

Explanation of a series of reactions of alphachloro-dialkyl-ethers, as in their association with HBr, organic acids and alcohols.

PA 15T88

Bogdanova, A. V. Cand Chem Sci

Dissertation: "Synthesis and Transformations of the Products of Hydro-Halogenation of Vinyl Ethers."

10 March 49

Inst of Organic Chemistry, Acad Sci USSR

SO Vecheryaya Moskva
Sum 71

15

Comparative characteristic properties of α-chloroalkyl alkyl ethers. M. F. Shostakovskii and A. V. Bogdanova (Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* **1950**, 321-6.—Satn. of 80 g. BuOH with HCl at 1-3°, addn. of 51 g. polyoxymethylene and 20 g. Na_2SO_4, and continued passage of HCl gave the *$BuOCH_2Cl$*, b_{20} 55-6°, n_D^{20} 1.4208, d_4^{20} 0.9065; the product, like other $ROCH_2Cl$ analogs, can be stored indefinitely and is hydrolyzed, yielding CH_2O (detd. by $NaHSO_3$ method), only in acid or basic solns.; it can be titrated with NaOH to give the Cl content and $AgNO_3$ titration also can be used. complexes with tertiary amines are stable in contrast to those of MeCHClOR. Heating on a water bath 10 hrs. with BuOH readily yields $(BuO)_2CH_2$. Addn. of 17.5 g. $ClCH_2OBu$ at 5° to 17.5 g. $Na_2S.9H_2O$ in 20 ml. Et_2O and stirring 2 hrs. gave a little H_2S and 7 g. NaCl, while distn. of the soln. gave 8.5 g. material, b. 90-178°, which gave an aldehyde test, and 9 g. *$(BuOCH_2)_2S$*, b_2 88-9°, n_D^{20} 1.4440, d_4^{20} 0.8553, which gives an insol. ppt. with $HgCl_2$. Other products formed included *$(BuO)_2CH_2$*, b_{14} 83-4°, n_D^{20} 1.4000, d_4^{20} 0.8393, *trithioformaldehyde*, m. 219-20°, and a product, b_2 157-8°, n_D^{20} 1.4530, d_4^{20} 0.9971, which was not identified. Heating $BuOCH_2Cl$ to 200-10° gave, from 33.5 g. ether, 20 g. BuCl and paraformaldehyde, which coated the app.

G. M. Kosolapoff

CA

Syntheses and reactions of α-haloethyl alkyl ethers. II. 1-Bromoethyl alkyl ethers. M. F. Shostakovskii and A. V. Bogdanova (Acad. Sci. U.S.S.R., Moscow). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 20, 1315-25(1950); cf. *C.A.* 42, 4510*i*.—The ethers MeCHBrOR are more reactive than the Cl analogs, apparently because of a hyperconjugative effect in the Me group and consequent loosening of the Br link to the point of almost complete ionization. The elimination of HBr by means of inorg. or org. bases, in an attempt to prep. the corresponding vinyl derivs., was shown to be impossible. These ethers with aq. alkali (NaOH) yield AcH and ROH at a rate comparable to that of neutralization, while $PhNEt_2$ gave acetals, $MeCH(OR)_2$, originating from the attack by the amine-HBr on the ether O, which liberates ROH, which, in turn, reacts with the original ether, yielding the final acetal; NH_3 reacts even more smoothly, while the Na reaction confirms the ionic state of the Br by yielding acetals, as above, instead of Wurtz reaction products. Passage of HBr into 100 g. CH_2:CHOBu, b. 93-3.5°, n_D^{20} 1.4020, d^{20} 0.7788, at 0° until an 82.5 g. wt. gain was reached gave 88.9% *MeCHBrOBu*, b_{10} 57-8°, n_D^{20} 1.4485, d^{20} 1.2580. Similarly, CH_2:CHOEt, b. 35.5-6.0°, n_D^{20} 1.3785, d^{20} 0.7512, gave 84% *MeCHBrOEt*, b_{20} 40-1°, n_D^{20} 1.4405, d^{20} 1.2770; CH_2:CHOMe, b_{760} 5.0-5.2°, n_D^{0} 1.3730, d^{0} 0.7723, gave 85% *MeCHBrOMe*, b_{80} 50.5-7.0°, n_D^{20} 1.4480, d^{20} 1.4251. Titration with 0.1 *N* NaOH to methyl orange at room temp. immediately gives 98.5-8.8% ionizable HX, i.e., Br ion; the results are similar in a Volhard titration. Treatment with aq. $NaHSO_3$ gives essentially quant. amts. of AcH (iodometric detn.). Addn. of 26 g. MeCHBrOBu to 21.4 g. $PhNEt_2$ at 5° gave 90% *$MeCH(OBu)_2$*; BuOH as solvent gave the same result, while passage of dry NH_3 into the ether in Et_2O (max. temp. 42°) gave 74% $MeCH(OBu)_2$, some BuOH, and a little polymer. Addn. of 9 g. MeCHBrOBu to 1.1 g. Na in Et_2O and heating 2 hrs. gave 5 g. NaBr, 4 g. $MeCH(OBu)_2$, and a small amt. of EtOBu or CH_2:CHOBu. Addn. of MeCHBrOEt to satd. EtOH-NaOH and heating 1 hr. at 70° gave 11.9 g. NaBr and 5 g. $MeCH(OEt)_2$, while MeCHBrOMe similarly gave *$MeCH(OMe)_2$*, b. 63.5-4.0°, n_D^{20} 1.3700, d^{20} 0.8578. MeCHBrOEt (18.8

g.) in petr. ether added to 11 g. powd. NaOAc at 5-8° and heated 2 hrs. gave 14 g. NaBr and 63% *MeCH(OAc)OEt*, b_{58} 0°, n_D^{20} 1.3930, d_4^{20} 0.9468; dioxane as solvent gave 87% of the latter product; a similar reaction with MeCHBr-OBu in petr. ether gave a little BuOH and AcOH, while in dioxane 45% *MeCH(OAc)OBu*, b_{10} 77°, n_D^{20} 1.4030, d_4^{20} 0.9187, was obtained. Passage of dry HCl into MeCHBr-OEt at room temp. failed to cause any reaction. The MeCHBrOR ethers are generally poorly stable, the instability being greater in higher homologs; all are effective catalysts for vinyl polymerizations. III. 2-Haloethyl phenyl **ethers.** *Ibid.* 1328-32. The ethers MeCHXOPh are less reactive and more stable than the aliphatic analogs, as a result of the opposing mesomeric effects introduced by the Ph nucleus, which increases the covalent link with the halogen. Slow passage of dry HX into CH_2:CHOPh below 0° readily gave *MeCHClOPh* (95.5%), b_{16} 97-8°, n_D^{20} 1.5225, d_4^{20} 1.1150, and *MeCHBrOPh* (95.4%), b_8 87-9°, n_D^{20} 1.5500, d_4^{20} 1.3940. Shaking MeCHClOPh 45 min. with 0.2 *N* $NaHSO_3$ gave a quant. amt. of AcH; titration with 0.1 *N* NaOH also gave 99.5% removal of Cl, as did the Volhard detn. A soln. of the ether in BuOH gave a polymeric product (viscous red mass), and no true reaction with BuOH took place; the result was similar even at −12° in a N atm.; EtOH-KOH at 5° readily gave 88% MeCH-(OEt)OPh, b_6 70-1°, n_D^{20} 1.4930, d_4^{20} 0.9932, while KOH-BuOH gave *MeCH(OPh)OBu*, b_{13} 125-7°, n_D^{20} 1.4825, d_4^{20} 0.9505. Heating the ether with AcOH gave HCl and a red polymer; no reaction occurred with NaOAc in Et_2O, nor with Br at 4°; HCl had no effect at 20°, while $PhNEt_2$ gave CH_2:CHOPh, some PhOH, and *MeCH(OPh)₂*, b_{10} 140-8°, n_D^{20} 1.5540, d_4^{20} 1.0808. G. M. Kosolapoff

CA

ecomposition of α-halo ethers. I. α-Haloethyl alkyl ethers. M. F. Shostakovskii and A. V. Bogdanova. *Zhur. Obshchei Khim.* (J. Gen. Chem.) 21, 388-93(1951).—Contrary to current ideas, α-haloethyl alkyl ethers lose HX only in contact with atm. moisture or with excess of H_2O. The decompn. induced by H_2O probably first yields HX, ROH, and *polyvinyl resinous products*, and the formation of RX is a secondary reaction of HX with the ROH. *MeCHBrOBu*, b_{50} 63.0-3.8°, n_D^{20} 1.4483, d_4^{20} 1.2981 (180 g.), was gradually distd. through a 25-cm. column, yielding 97.1% *BuBr*, 15 g. H_2O, and traces of AcH. Letting 50 g. ether stand 3 weeks in a sealed tube in diffused light gave 80.1% BuBr and H_2O upon distn. at 150 mm. Similar treatment of the ether (30.6 g.) mixed with 13 g. $CH_2:CHCH_2Br$ gave 98.7% BuBr, 2.8 g. H_2O, and 90% unchanged $CH_2:CHCH_2Br$, as well as a little dark resin and traces of AcH. Slow distn. of *MeCHBrOEt* similarly gave 80% EtBr and H_2O, along with AcH. *MeCHBrOMe*, b_{90} 56.5-7.0°, n_D^{20} 1.4486, d_4^{20} 1.4253, kept 3 weeks in diffused light in a sealed tube gave MeBr hydrate and $MeCH(OMe)_2$, b. 62-4°, as well as a little resin (C 65.5, H 6.8%) and an unstated amt. of Br. **II. α-Haloethyl phenyl ethers.** *Ibid.* 394-6.—Keeping 10 g. *MeCHBrOPh*, b_{10} 88.0°, n_D^{20} 1.5500, d_4^{20} 1.3640, 7 days in a sealed tube in diffused light yielded a pink porous solid which ruptured the vessel; repetition in N atm. gave the same material which is partly sol. in Me_2CO; the insol. portion analyzes as $C_{16}H_{16}O_3$, apparently a *phenol-aldehyde resin;* the sol. portion had a similar compn. If the ether is allowed to stand in moist air a similar product forms rapidly (30 min.), along with a little free PhOH. A soln. of the ether in $CH_2:CHOBu$ and dioxane slowly (2 days) deposits small amts. of solid, the latter contains Br, while the soln. yields BuBr and H_2O. Slow distn. of MeCHClOPh gave much HCl, PhOH, and an aldehyde-phenol resin.

G. M. Kosolapoff

1951

C. a.
1951

Organic Chemistry
10

Hydrolysis of vinyl phenyl ether M. F. Shostakovskii and A. V. Bogdanova. *Zhur. Obshchei Khim.* (J. Gen. Chem.) 21, 632-4(1951).—Hydrolysis of *PhOCH:CH$_2$*, b. 155.0°, n_D^{20} 1.5225, d_4^{20} 0.9767, with 2% H_2SO_4 in sealed tubes at 100°, followed by detn. of the AcH produced, is substantially complete in 2 hrs.; 1% H_2SO_4 in 2 hrs. gives 84-5% hydrolysis. The reaction proceeds by formation of an oxonium complex by protonation of O, followed by addn. of HOH, with displacement of the proton and consequent cleavage of the hemiacetal to AcH and ROH. G. M. K.

RA Bogdanova A.B. Polymers from [illegible] Components

1809. Transformations of acrylonitrile and alpha-methylstyrene in the presence of hydrogen peroxide. M. F. Shostakovskii and A. B. Bogdanova. *Zhur. Priklad. Khim.*, 1951, **24**, 495-501. *Chem. Abs.*, 1952, **46**, 1 01. Polymerisation of equal molecular amounts of the monomers at 60° C. in the presence of hydrogen peroxide, gives a rubbery product partly soluble in benzene and acetone. A copolymer with an excess of styrene had low molecular weight. Other studies on the homopolymerisation of the monomers are reported. 352MDN1212

CA

The transformations of acrylonitrile and α-methylstyrene in the presence of hydrogen peroxide. M. F. Shostakovskii and A. V. Bogdanova. *J. Applied Chem. U.S.S.R.* 24, 541-8(1951)(Engl. translation).—See C.A. 46, 1961*f*.
B. R.

BOGDANOVA, A.V.

Chem Abs v48
1-25-54
Organic Chemistry

5 Chem

Butoxyethyl acetate. M. F. Shostakovskii, N. A. Gershtein, A. V. Bogdanova, and V. P. Shishkov. *Akad. Nauk S.S.S.R., Inst. Org. Khim., Sintezy Org. Soedinenii, Sbornik* 2, 25-8(1952); cf. *C.A.* 42, 4519*d*; 43, 3785*i*.—Three methods are described. To 100 g. BuOCH:CH_2 was added with stirring at room temp. 60 g. AcOH, after which the mixt. was kept 4-5 hrs. at 60° and allowed to stand overnight; distn. in dry N atm. gave 91% *MeCH(OBu)OAc*, (I), b_9 51.5-1.8°. To 11 g. AcOH was added dropwise 20 g. MeCHClOBu at below 20°, after which the mixt. was stirred 2 hrs. at 50-5° and allowed to stand overnight; distn. gave 23 g. crude product, b_{24} 67-70°, which was washed 3 times with 5% $NaHCO_3$ and dried; distn. gave 85% I, b_{16} 67-8°. To 43 g. AcOCH:CH_2 and 160 g. BuOH 0.21 g. Bz_2O_2 was added and the homogeneous soln. was kept in ampul 30 days at 20° (heating yields insol. resin). Distn. gave 40% I, b_{10} 52-3.5°, and 1 g. polyvinyl acetate. Pure I, b_9 51.5-1.8°, b_{16} 67-8°, d_{20} 0.9182, n_D^{20} 1.4040. Similarly were prepd.: 87% *EtOCHMeOAc* (from EtOCHBrMe and NaOAc in dioxane) or 33.6% from AcOCH:CH_2 and EtOH with Bz_2O_2; the product, b. 120°, b_{11} 48-50°, d_{20} 0.9142, n_D^{20} 1.3930; 38% *PrOCHMeOAc* (from AcOCH:CH_2 and PrOH with Bz_2O_2), b_{20} 55°, d_{20} 0.9240, n_D^{20} 1.3980; 47% iso-*AmOCHMeOAc* (from AcOCH:CH_2 and iso-AmOH with Bz_2O_2), b. 145°, d_{20} 0.9202, n_D^{20} 1.4212. G. M. Kosolapoff

MF
4-23-54

BOGDANOVA, A.V.

(3)

Chem Abs V48
1-25-54
Organic Chemistry

Ethyl phenyl acetal. M. F. Shostakovskiĭ and A. V. Bogdanova. Akad. Nauk S.S.S.R., Inst. Org. Khim., *Sintezy Org. Soedinenii, Sbornik* 2, 106–7(1952); cf. *C.A.* 45, 1501*b*.—To 8.5 g. KOH in 75 ml. abs. EtOH is added at 5–7° slowly 23.5 g. MeCHClOPh. After stirring 2 hrs. longer and allowing the mixt. to stand overnight, it was filtered and the filtrate distd. yielding 87% *MeCH(OEt)OPh*, b_4 70–1°, d_{20} 0.9940, n^{20}_D 1.4936. G. M. Kosolapoff

NF
1-28-54

BOGDANOVA, A. V.

(2) Chem

Analytical Abst.
Vol, 1 No. 2
Feb. 1954
Organic Analysis

300. **Methods of analysis of halogenated ethers. I. Analysis of α-halogen-dialkyl and ethylaryl ethers.** M. F. Shostakovsky and A. V. Bogdanova (*J. Anal. Chem., U.S.S.R.*, 1953, 8 (4), 231-234).—Compounds of the type RCH_2CHXOR' where R = H or CH_3, X = Cl or Br, and R' = Alkyl or Aryl are hydrolysed instantaneously at room temp. to RCH_2CHO, HX and R'OH by excess of water. Detection of the compounds can be based on tests for aldehyde, halide, or acid. They can be determined by hydrolysis followed by titration with 0·1 *N* NaOH, titration with 0·1 *N* $AgNO_3$, or titration of the aldehyde with bisulphite. A number of different compounds were determined in this way with excellent results. G. S. SMITH.

NF
9-22-54

BOGDANOVA, A.V.

USSR

Chemical Abst.
Vol. 48 No. 3
Feb. 10, 1954
Organic Chemistry

Acetylenic alcohols and glycols. I. Synthesis and transformations of 1,4-butynediol. M. F. Shostakovskii and A. V. Bogdanova. *Zhur. Obshchei Khim.* 23, 1116(1953).—~~Into a rotating~~ autoclave contg. 217 g. 30% formalin and catalyst (it is stated that metal acetylides were used but no further description is given) there was passed a stream of C_2H_2, a pressure of C_2H_2 of 13-15 atm. was established and the autoclave heated with rotation 1 hr. to 97-105°; after addn. of more C_2H_2 heating was resumed for 3 hrs. with consumption of 43.0 l. C_2H_2. The residual catalyst was again treated with formalin and the reaction could be repeated in the same app. The filtrate after distn. of H_2O gave 80.8% *1,4-butynediol*, m. 55-7° in crude state; distn. of this gave 58.7 g. (68.3%) pure product (I), b_{10} 151-2°, b_{5} 137-8°, m. 57-8°. To 43 g. I and 50 g. dioxane was added 1 drop concd. HCl followed by addn. over 3 hrs. of 75 g. $EtOCH:CH_2$ at 30-42°; after 2.5 hrs. at 48-50°, the mixt. was treated with dry K_2CO_3, filtered and distd. yielding after 2 distns. 88 g. (76.5%) *(EtOCHMeOCH₂C:)₂*, b_4 126-7°, b_{760} 254-5° (slight decompn.), n_D^{20} 1.4400, d_{20} 0.9749. A 78.8% yield is obtained when 43 g. I and 75 g. $EtOCH:CH_2$ are heated in autoclave without catalyst 9 hrs. at 88-96°; the product, $b_{4.5}$ 128-9°, n_D^{20} 1.4400, d_{20} 0.9762. From the low-boiling by-products some $MeCH(OEt)_2$ was isolated. Similarly, 43 g. I and 37 g. $EtOCH:CH_2$ after 1.5 hrs. at 81-8° gave 60.1% *EtOCHMeOCH₂C:CCH₂OH*, b_3 124-4.5°, n_D^{20} 1.4650, d_{20} 1.0192. Reaction of 43 g. I in 50 g. dioxane with 110 g. $BuOCH:CH_2$ in the presence of 1 drop HCl (as above) gave 14 g. $MeCH(OBu)_2$ and 64% *(BuOCHMeOCH₂C:)₂*, b_2 152-3°, n_D^{20} 1.4445, d_{20} 0.9355; if the reaction is run without catalyst in autoclave (as above for Et analog) 8.5 hrs. at 96-110°, there is formed some BuOH, $MeCH(OBu)_2$, 60.2% above di-Bu deriv., b_2 151-2°, n_D^{20} 1.4440, d_{20} 0.9363, and a very small amt. of *BuOCHMeOCH₂C:CCH₂OH* (II) b_2 121-2°, n_D^{20} 1.4570, d_{20} 0.9745. Heating 43 g. I with 50 g. $BuOCH:CH_2$ in autoclave 1.5 hrs. at 96-104° gave $MeCH(OBu)_2$ and 38% II, b_2 126-7°, n_D^{20} 1.4565, d_{20} 0.9750. When the above ethers were shaken with 2% H_2SO_4 and equal vol. of H_2O in the presence of excess 0.2*N* $NaHSO_3$ for 15 min. and let stand 15 min., back titration of unused $NaHSO_3$ allowed for estn. of the extent of hydrolysis. In all cases this was essentially quant. Hydrogenation of the di-Bu ether over PtO_2 gave BuOH and butylene glycol, b_2 106-7°, n_D^{20} 1.3990, d_{20} 1.0170.

G. M. Kosolapoff

Bogdanova, A.V.

USSR.

Stabilization of α-halogenated ethers. M. F. Shostakovskii and A. V. Bogdanova (Inst. Org. Chem., Acad. Sci. U.S.S.R., [illegible] Akad. Nauk S.S.S.R., Otdel. Khim. Nauk 1954, 102-3.—Satisfactory stabilization for several months or years of EtOCHMeCl, EtOCHMeBr, and BuOCHMeBr is attained by addn. to them of 15-20% Et_2O. For stabilization at elevated temp. (2 months at 60°) the amt. of added Et_2O must be about 50%. Dioxane is less effective, as is C_6H_6, although both show some protective action. G. M. Kosolapoff

Transformations of vinyl aryl ethers. I. Ionic polymerization of vinyl aryl ethers. ~~A. V. Bogdanova~~ and M. F. Shostakovskii. Bull. Acad. ~~Sci. U.S.S.R., Div.~~ Chem. Sci. 1954, [illegible]-95(Engl. translation). II. Radical polymerization and copolymerization of vinyl aryl ethers. M. F. Shostakovskii and A. V. Bogdanova. Ibid. 797-801.—See C.A. 49, 10111. B. M. R.

BOGDANOVA, A. V.

USSR/Chemistry Synthesis

Card : 1/1 Pub. 40 - 15/27

Authors : Shostakovskiy, M. F., and Bogdanova, A. V.

Title : Investigation of acetylene alcohols and glycols. Part 3.- Multistage synthesis of acetals of acetylene glycols

Periodical : Izv. AN SSSR, Otd, khim. nauk 4, 677 - 682, July - August 1954

Abstract : Experimental data are presented showing the multistage mechanism of the formation of diacetals of acetylene glycols. The two basic methods - catalytic and thermal - by which multistage synthesis of diacetals is realized, are described. Symmetrization, which intensifies with the increase of molecular weights of the radicals of the basic vinyl ethers, was observed during the derivation of mixed diacetals from homologous monoacetals. It was established that symmetrical diacetal is a product of substitution of the low-molecular alkoxy group by a high-molecular group. Seventeen references: 12 USSR; 3 French; 1 USA and 1 German (1912 - 1954). Tables.

Institution : Acad. of Sc. USSR, The N. D. Zelinskiy Institute of Organic Chemistry

Submitted : September 21, 1953

BOGDANOVA, A. V.

USSR.

Transformations of vinyl aryl ethers. I. Ionic polymerisation of vinyl aryl ethers. A. V. Bogdanova and M. F. Shostakovskii. **II. Radical polymerisation and copolymerisation of vinyl aryl ethers.** M. F. Shostakovskii and A. V. Bogdanova (*Izvest. Akad. Nauk SSSR, Otdel. Khim. Nauk*, 1954, 911–918, 919–924). [illegible] merisation of $CH_2:CH \cdot OAr$ (Ar is Ph or [illegible]) [illegible] by $FeCl_3$, $AlCl_3$, and BF_3, Et_2O at 15° or at [illegible]. The polymers are viscous liquids or solids, mol. wt. [illegible]–1800, sol. in org. solvents other than alcohols, and are obtained in yields of 69–94%.

II. The ethers when heated at 75° for 100 hr. with $(CN \cdot CMe_2 \cdot N:)_2$ give solid polymers, mol. wt. 700–1800, sol. in most org. solvents except alcohols, of the general structure $CN \cdot CMe_2 \cdot CH_2CH(OAr) \cdot [CH_2 \cdot CH_2 \cdot CH(OAr)]_n$. Viscous liquid copolymers are obtained similarly from mixtures of $CH_2:CH \cdot OAr$ and $CH_2:CH \cdot OAlk$ (Alk is Et or Bu^n).

R. Truscoe.

[illegible]

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2 may

Bogdanova, A. V.

Vinyl aryl ethers. III. Copolymerization of vinyl aryl and vinyl alkyl ethers under the influence of ionic catalysts. M. F. Shostakovskii and A. V. Bogdanova (Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Zhur. Obshchei Khim.* 25, 1550-5(1955); cf. *C.A.* 45, 1500e; 49, 13941e.—ArOCH:CH_2 copolymerize with ROCH:CH_2 if the catalyst employed for the reaction is BF_3-Et_2O. A no. of copolymers of EtOCH:CH_2 and BuOCH:CH_2 with PhOCH:CH_2 and *p*-$Me_3CC_6H_4OCH$:CH_2 were prepd. with various proportions of the monomers. The reaction occurs rapidly and is exothermic. The qual. soly. of the copolymers in Me_2CO, BuOH, EtOH, MeOH, AcOH, and gasoline is given in tabular form. The mol. wts. of the products are generally below 7500.

G. M. Kosolapoff

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BOGDANOVA, A. V.

USSR/Chemistry - Organic chemistry

Card 1/1 Pub. 22 - 23/50

Authors : Shostakovskiy, M. F., and Bogdanova, A. V.

Title : Study of vinyl aryl ethers. Reaction of vinylphenyl ether with dibutyl acetal

Periodical : Dok. AN SSSR 100/1, 89-92, Jan 1, 1955

Abstract : Investigations were conducted to determine the reactivity of vinyl aryl ethers during contact with compounds containing active hydrogen. Results indicate that vinylphenyl ether will react with dialkyl acetals leading to the formation of alkoxyphenoxyalkanes with a carbon chain of various length. A study of phenoxydibutoxybutane hydrolysis products and 1,1,3-tributoxybutane and butylphenyl acetal formed during the basic synthesis led to a conclusion that this reaction is also followed by the separation of the alkoxy-acetal group. Seven references: 5 USSR and 2 USA (1949-1954).

Institution : Acad. of Sc., USSR., The N. D. Zelinskiy Institute of Organic Chemistry

Presented by : Academician I. N. Nazarov, June 24, 1954

4

... molecular polymerization. I. Reaction mechanism ...

CCl_4) ... and by use of 0·0015 mol. of Bz_2O_2. A fraction of [illegible] from the reaction mixture separated with b.p. 145—145·5°. The polymers in the reaction mixture deposited as transparent orange-coloured products, decomposing at 125° with separation of HCl and forming resinous products; they dissolved in methanol and benzene but not in gasoline. Synthesis was made of 1 : 3 : 3 : 3-tetrachloropropyl butyl and 1 : 3 : 3 : 3-tetrachloropropyl [illegible] ethers with II and III in similar conditions ... transparent and viscous ... from II not in MeOH ...

BOGDANOVA, A.V.

7

4E2d

2 May

Vinyl ethers. 7 V. Some properties of vinyl 2-naphthyl ether. M. F. Shostakovskii, A. V. Bogdanova, and G. K. Krasil'nikova (N. D. Zelinskii Inst. Org. Chem., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1957, 330-44; cf. *C.A.* 50, 7737i.—Addn. of C_2H_2 at 17-18 atm. to an autoclave contg. 50 g. 2-$C_{10}H_7OH$, 30 ml. H_2O, and 16.5 g. powd. KOH at 181-8° gave 73% 2-$C_{10}H_7OCH{:}CH_2$, b_3 114°, b_{11} 147°, m. 34° (supercooled, n^{20}_D 1.6172, d_{20} 1.0612). This hydrolyzed completely on heating with 2% H_2SO_4 on a steam bath. Passage of dry HCl at −7° into the ether gave in 5 hrs. 90.3% 2-$C_{10}H_7OCHClMe$, a powder, decomp. 18-20°, which fumes in air; this heated *in vacuo* to 100° under N gave 89% dimer, $(C_{12}H_{12}O)_2$, m. 196-7°. 2-$C_{10}H_7OCHClMe$ (5 g.) in abs. Et_2O was treated with 5 g. 2-$C_{10}H_7$ and treated with a stream of dry NH_3, yielding after standing overnight, 0.12 g. 4-methyldinaphtho-2',1';2,3-1'',2'';5,6-pyran, m. 173-4°; similar reaction in BuOH gave 75.4% above pyran and 69% $(BuO)_2CHMe$. Addn. of 15 g. 2-$C_{10}H_7OCHClMe$ to EtONa from 1.7 g. Na in EtOH gave 25% dimer, m. 196°, identical with that described above and 47.5% pyran deriv., m. 172°, identical with the above, along with $MeCH(OEt)_2$. Adding a little concd. HCl to 10 g. 2-$C_{10}H_7OCH{:}CH_2$ and 5.8 g. PhOH in C_6H_6 and heating 5 hrs. at 50° gave 82% above pyran deriv., m. 171°. 2-$C_{10}H_7OH$ with appropriate vinyl ethers in presence of a catalytic amt. of HCl gave $MeCH(OPh)(OC_{10}H_7\text{-}2)$, b_1 183°, n^{20}_D 1.6130, d_{20} 1.1282, $MeCH(OEt)(OC_{10}H_7\text{-}2)$, b_1 108°, 1.5702, 1.0[illegible]69, Shostakovskii, M.F. + Etc., 7

4E4j
4E2c
3 may

and *$MeCH(OC_6H_{11})(OC_5H_7\text{-}2)$*, b_1 165°, 1.5070, 1.0720. On prolonged storage these acetals deposit crystals of the above described pyran. VI. Some properties and transformations of vinyl cyclohexyl ether and its derivatives. A. V. Bogdanov, M. F. Shostakovskii, and G. K. Krasil'nikova. *Ibid.* 345-52; cf. *C.A.* 51, 6730e.—*$C_6H_{11}OCH:CH_2$* (I), b_{14} 64°, n_D^{20} 1.4541, d_{20} 0.8890, hydrolyzed completely on shaking 0.5 hr. with 2% H_2SO_4. I satd. with dry HCl at −5° gave 73.6% *$C_6H_{11}OCHClMe$*, b_{14} 82.5-3°, n_D^{20} 1.4598, d_{20} 1.0108, which fumes in air, and is rapidly hydrolyzed on shaking with H_2O. Treatment of it with dry NH_3 with ice cooling gave 88.8% *$MeCH(OC_6H_{11})_2$*, b_{14} 134-5°, b_{11} 140°, 1.4672, 0.9535. Similar treatment of BuOCHClMe gave 81% $MeCH(OBu)_2$, while PhOCHClMe with NH_3 similarly gave 92% PhOH. Addn. of 7 g. $C_6H_{11}OCHClMe$ with EtONa from 1 g. Na in excess EtOH gave *$MeCH(OEt)OC_6H_{11}$*, b_{17} 71°, b_{25} 82°, 1.4567, 0.9111. $C_6H_{11}OCHClMe$ (16 g.) with BuMgBr from 14.1 g. BuBr gave 60% *$MeBuCHOC_6H_{11}$*, b_{14} 104-5°, 1.4408, 0.8593; similarly, BuOCHClMe gave 74.0% *$BuOCHMeBu$*, b_{14} 65°, 1.4089, 0.7800, while PhOCHClMe gave 80.4% *$PhOCHMeBu$*, b_4 88°, 1.4901, 0.9228. Heating 13.0 g. I and 1.1 g. Bz_2O_2 in 61.4 g. CCl_4 2 hrs. at 88° gave 66%

2/3

Shostakovskii, M.F. + Etc.

4E4j
4E2c
Imay

3/3

$C_5H_{11}OCHClCH{:}CCl_2$ (II), b_4 108°, 1.5040, 1.2412, and 19.8% $CCl_2{:}CHCH(OC_5H_{11})_2$, b_4 152-3°, 1.4987, 1.1292, along with 1.5 g. solid polymer. II is completely hydrolyzed by 1 hr. in H_2O at 90°. II (10 g.) and EtONa from 1.51 g. Na and excess EtOH gave 100% NaCl, $CCl_2{:}CHCH(OEt)_2$, b_5 46-7°, 1.4509, 1.1482, 3.1 g. $CCl_2{:}CHCH(OC_5H_{11})_2$, and 6.6 g. $CCl_2{:}CHCH(OEt)(OC_5H_{11})$, b_3 111.5-2.5°, 1.4647, 1.1212. $CCl_3CH_2CHClOC_5H_{11}$ (obtained from the crude prepn. of I without distn.) treated as above with EtONa-EtOH gave $CCl_3CH_2CH(OEt)_2$ (cf. above ref.), along with $CCl_3CH_2CH(OEt)(OC_5H_{11})$, b_3 122-3.5°, 1.4770, 1.1882, $MeCH(OEt)_2$, and $CCl_2{:}CHCH(OC_5H_{11})_2$. Heating 23.68 g. I with 4.62 g. CCl_4 and 0.5 g. Bz_2O_2 2 hrs. at 88° gave 42% yellow solid polymer contg. 1% Cl. I with ROH in the presence of a trace of concd. HCl gave 85% $MeCH(OC_5H_{11})_2$, b_{22} 134-5°, 1.4072, 0.8585, 60% $MeCH(OC_5H_{11})(OC_{10}H_7)$, b_2 165°, 1.5670, 1.0736, 60% $MeCH(OPh)OC_5H_{11}$, b_{22} 142-3°, 1.4940, 0.9972, and 60% $MeCH(OEt)OC_5H_{11}$, b_{22} 81-2°, 1.4500, 0.8405.

G. M. Kosolapoff

4E2c

✓ **Ionic and radical polymerization and copolymerization of vinyl ethers of cyclohexanol, 2-decalol, and 2-naphthol.** ~~A. V. Bogdanova, M. F. Shostakovskii, and G. K. Krasil'nikova~~ (N. D. Zelinskii Inst. Org. Chem., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1957, 337-9; cf. *C.A.* 50, 11284h.—Addn. of few drops of 5% Et₂O soln. of BF₃.Et₂O and stirring without further heating gave 60- [illegible] these were colorless or yellowish solids, sol. in many of the common solvents. Copolymers of these with [illegible]OCH:CH₂, BuOCH:CH₂ and PhOCH:CH₂ were prepd. in 31-79% yields, the products having mol. wts. up to 2118, being viscous or solid substances contg., except for the vinyl cyclohexyl ether-vinyl phenyl ether, predominance of alkyl vinyl ether component. When the 1st 3 monomers were heated with Bz₂O₂ or (Me₂C(CN)N)₂, polymers in 10-70% yields were obtained when 3-5% catalyst was used, although 10% solid polymer also formed from CH₂:CHOC₆H₁₁ on heating without a catalyst for a prolonged period. Copolymerization of these 3 monomers with CH₂:CHCO₂Me and CH₂:CMeCO₂Me performed with Bz₂O₂ catalyst (0.2%) at 60° in 68 hrs. gave appropriate copolymers in 22-80% yields with predominant content of the acrylates.

G. M. Kosolapoff

BOGDANOVA, A.V.

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2-MAY
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Distr: 4E4j/4E2c(j)/4E3d

Low polymerization. IV. Synthesis of new hydroxyalkenes. M. F. Shostakovskii, A. V. Bogdanova, and O. K. Krasil'nikova (N. D. Zelinskii Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1957, 1141-3; cf. *C.A.* 50, 1066c; 51, 10381h.—Reaction of 89 g. $MeCH(OBu)_2$, 26.5 g. vinyl cyclohexyl ether, and 0.1 ml. 25% BF_3 in Et_2O at 125-30° gave a mixt. of products from which was isolated 9 g. $MeCH(OBu)(OC_6H_{11})$, 4.1 g. *tributoxybutane*, b_1 110-20°, n_D^{20} 1.4303, d_{20} 0.8870, 4.1 g. $MeCH(OC_6H_{11})CH_2CH(OBu)_2$, b_1 131-2°, 1.4410, 0.9009, and 7.2 g. *dibutoxytricyclohexyloxyoctane*, b_1 204-5°, 1.4650, 0.9425. Similarly, 12 g. $PhOCH:CH_2$ and 19.4 g. $MeCH(OBu)(OPh)$ at 70° gave 65% *1-butoxy-1,3-diphenoxybutane*, b_1 168°, 1.5176, 1.0232; attempts made with $MeCH(OPh)_2$ gave tars and polymerized products. Reaction of 11.5 g. $HC\!:\!CCH:CHOBu$ and 35 g. $MeCH(OBu)_2$ with a few drops of $BF_3.Et_2O$ in 3 hrs. at 130-40° gave 40% *1,1,3-tributoxy-5-hexyne*, $b_{0.4}$ 134-5.5°, 1.4530, 0.9087. The use of $MeCH(OEt)_2$ in the above gave $HC\!:\!CCH_2CH(OBu)CH_2CH(OEt)_2$, b_1 98.5°, 1.4520, 0.9223. $MeCH(OEt)_2$ and $HC\!:\!CCH:CHOC_6H_{11}$ similarly gave $HC\!:\!CCH_2CH(OC_6H_{11})CH_2CH(OEt)_2$, b_1 110-12°, 1.4826, 0.9873, and an *ethoxycyclohexyloxyhexenyne*, $C_{14}H_{24}O_2$, b_1 81°, 1.4900, 0.9504. G. M. Kosolapoff

1/1

BOGDANOVA, A. V.

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4E2c

2 May

Chem

10784* (Russian.) Investigation in the Field of Low-Molecular Polymerization. Issledovanie v oblasti nizkomolekuliarnoi polimerizatsii. II. Interaction Between Some Vinyl Ethers and Carbon Tetrachloride Under the Influence of Different Initiators. Vzaimodeistvie nekotorykh prostykh vinilovykh efirov s chetyrekhkhloristym uglerodom pod vliianiem razlichnykh initsiatorov. A. V. Bogdanova and M. F. Shostakovskii. *Izvestiia Akademii Nauk SSSR Otdelenie Khimicheskikh Nauk*, no. 2, Feb. 1957, p. 224-22

A study of the condition of interaction of simple vinyl ethers with CCl_4 under the influence of various reagents and factors that initiate a reaction with the free radical.

PM MT

Inst. Org. Chem. im N. D. Zelinskiy, AS USSR

BOGDANOVA, A.V.; SHOSTAKOVSKIY, M.F.; KRASIL'NIKOVA, G.K.

Investigations in the field of vinylaryl ethers. Report No.6: Some properties and transformations of vinylcyclohexyl ether and its derivatives. Izv.AN SSSR.Otd.khim.nauk no.3:345-352 Mr '57.
(MLRA 10:5)

1.Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk SSSR.
(Vinyl compounds)

AUTHORS: Shostakovskiy, M. F., Bogdanova, A. V., SOV/62-58-6-16/37
Plotnikova, G. I., Dubrova, Ye. V.

TITLE: Investigation in the Field of Low-Molecular Polymerization (Issledovaniye v oblasti nizkomolekulyarnoy polimerizatsii) Communication 3. Interaction Between Divinyl Ether and Carbon Tetrachloride (Soobshcheniye 3. Vzaimodeystviye divinilovogo efira s chetyrekhkhloristym uglerodom)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, Nr 6, pp. 756-759 (USSR)

ABSTRACT: The investigation of the properties of tetrachloropropylalkyl- and tetrachloropropylaryl ethers (Refs 1,2), which was carried out by the authors, showed that these compounds, because of the mobility of α-chlorine, are similar to α-chloric ethers with respect to their reactivity. However, the presence of 3 chlorine atoms in their molecule (in the γ-situtation) renders this molecule more stable, and all transformations of these compounds are bound to lead to the formation of β-dichloroacrolein derivatives. It was interesting for the authors to compare the properties of already previously obtained tetrachloropropylalkyl ethers with

Card 1/3

Investigation in the Field of Low-Molecular Polymerization. Communication 3. Interaction Between Divinyl Ether and Carbon Tetrachloride

SOV/62-58-6-16/37

the properties of the products of the compound composed of carbon tetrachloride and divinyl ether. The conditions of the interaction between divinyl ether and carbon tetrachloride under the influence of benzoyl peroxide and nitryl azobutyrate are investigated. Conditions for the formation of 1,3,3,3--tetrachloropropylvinyl- and bis-(1,3,3,3-tetrachloride) propyl ethers were established. Moreover, the separated ethers are characterized and structure of tetrachloropropylvinyl ether was determined by hydrolysis. The increased resistivity of bis-(tetrachloride) propyl ether in the reactions of hydrolysis was demonstrated. There are 1 table and 10 references, 7 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy, AS USSR)

SUBMITTED: December 25, 1956

Card 2/3

Investigation in the Field of Low-Molecular Polymerization. Communication 3. Interaction Between Divinyl Ether and Carbon Tetrachloride

SOV/62-58-6-16/37

1. Divinyl ethers--Chemical reactions 2. Carbon tetrachloride--Chemical reactions 3. Ethers--Properties 4. Benzoyl peroxide--Chemical effects 5. Nitrobutyrates --Chemical effects

Card 3/3

BOGDANOVA, A.V.

SHOSTAKOVSKIY, M.F.; BOGDANOVA, A.V.; USHAKOVA, T.M.

Vinyl compounds in diene synthesis. Report No. 1: Interaction of some vinyl ethers with cyclopentadiene and hexachlorocyclopentadiene. Izv. AN SSSR Otd. khim. nauk no.10:1245-1249 O '57. (MIRA 11:3)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Ethers) (Cyckopentadiene)

BOGDANOVA, A.V.; SHOSTAKOVSKIY, M.F.; PLOTNIKOVA, G.I.

Dephenolizing tar water with vinyl ethers. Zhur.prikl.khim.
30 no.12:1872-1874 D '57. (MIRA 11:1)
(Ethers) (Coke industry) (Phenols)

1x

AUTHORS: Shostakovskiy, M. F., Bogdanova, A. V., Krasil'nikova, G. K. 20-114-6-31/54

TITLE: The Interaction of Diacetylene With Some Hydroxyl-Containing Compounds (Vzaimodeystviye diatsetilena s nekotorymi gidroksilsoderzhashchimi soyedineniyami).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 114, Nr 6, pp. 1250-1253 (USSR)

ABSTRACT: Because of its high reactivity diacetylene is of interest for synthetic organic chemistry. But its use is restricted by its small accessibility. The authors describe the 3 known production methods of diacetylene (references 1-8). The aim of the present investigation is the study of the interaction conditions of diacetylene with butanol, cyclohexanol and β-decanol, the isolation of the products and the comparison of their properties. Diacetylene reacts with alcohols under the influence of caustic alkalies on heating. On that occasion ethyl-vinyl-ethers form. In the case of an excess of alcohol they are converted to butine-2-Al-4-acetals (equation 2).

$$CH \equiv C - C \equiv CH + ROH \rightarrow CH \equiv C\text{-}CH \quad CH\text{-}OR, \qquad (1)$$

Card 1/4 where R = C_4H_9(I); C_6H_{11} (II); $C_{10}H_{17}$ (III)

$$CH\equiv C{-}{-}CH{=}CH{-}{-}CH{-}OR \dashrightarrow CH\equiv C{-}CH_2{-}CH(OR)_2 \rightarrow$$

$$\rightarrow CH_3 - C\equiv C - CH(OR)_2,$$

where R - C_4H_9(IV); C_6H_{11} (V); $C_{10}H_{17}$ (VI).

The reaction takes place in steps. In contrast to the alkylacetylenes the first alcohol-molecule is added to diacetylene, in opposition to the Markovnikov-rule. This is done by the influence of the second ethenyl group. The next molecule is added to the ethylvinylether according to the Markovnikov-rule. It is followed by an isomerization discovered for the hydrocarbone by Favorskiy (reference 9). On heating to 100° only ethylvinylethers are produced. Acetals only develop above 130°. The interaction of diacetylene with β-decalol begins at 90° and only ethylvinylether is obtained. At higher temperatures decanol is obtained. In order to prove this structure of isolated ethers and acetals, the authors used bromination, hydrolysis (reference 2) and hydrogenation (a partial and a complete one). In the partial hydrogenation 1-alkoxybutadienes develop, in the complete one - saturated ethers of the C_4H_9OR, series, where

The Interaction of Diacetylene With Some Hydroxyl-Containing Compounds 20-114-6-31/54

R = C_4H_9(VIII); C_6H_{11}(IX; $C_{10}H_{17}$ (X). From the butynalacetals the authors produced the corresponding butyralacetals. Ethylvinyl ethers are easily brominated. The addition of the first bromine-molecule probably takes place at the double bond and is accompanied by an isomerization. The second bromine-molecule is added to the triple bond and 1-butoxy-1,2,3,4-tetrabromobutene-2 (XIII) forms.
The reactions described indicate a considerable reactivity ethylvinylethers in the ionic conversions. In this connection some peculiarties of their double bond become recognizable. 16 compounds, 10 of whom were unknown in literature, were synthesized on the diacetylene-basis.
There are 2 tables, and 13 references, 2 of which are Slavic.

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The Interaction of Diacetylene With Some Hydroxyl-Containing Compounds

20-114-6-31/54

ASSOCIATION: Institute of Organic Chemistry AN USSR imeni N. D. Zelinskiy AS USSR (Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR).

PRESENTED: February 9, 1957, by B. A. Kazanskiy, Academician

SUBMITTED: February 9, 1957

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SOV/62-58-8-12/22

AUTHORS: Bogdanova, A. V., Shostakovskiy, M. F., Krasil'nikova, G. K.

TITLE: Investigation in the Field of Vinylaryl Ethers (Issledovaniye v oblasti vinilarilovykh efirov) Note 7: Ion- and Radical Polymerization of the Simple Vinyl Ether of Cyclohexanol, β-Decalol and β-Naphthol (Soobshcheniye 7. Ionnaya i radikal'naya polimerizatsii i sopolimerizatsii prostykh vinilovykh efirov tsiklogeksanola, β-dekalola i β-naftola)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1958, Nr 8, pp. 990-995 (USSR)

ABSTRACT: In publications there have hitherto been no notes concerning the polymerization of vinyl-β-naphthyl- and vinyl-β-decalyl ether under the action of the nitryl of azoisobutyric acid. In the previous papers the authors dealt with the polymerization of vinyl-phenyl and vinyl paraternary butyl-phenyl ether (Refs 1-3) as well as with their copolymerization with vinyl ether and vinyl-butyl ether. The present paper deals with the investigation of the conditions required for the polymerization and copolymerization of vinyl-β-naphthyl-, vinyl-β-decalyl-

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Investigation in the Field of Vinylaryl Ethers. Note 7: Ion- and Radical Polymerization of the Simple Vinyl Ether of Cyclohexanol, β-Decalol and β-Naphthol

and vinyl-cyclohexyl ether under the action of BF$_3$, the benzoyl peroxide and the nitrile of the azoisobutyric acid. The conditions were found on which the polymers of vinyl-cyclohexyl, vinyl-β-decalyl-and vinyl-β-naphthyl ether (and their copolymers) with vinyl ethyl, vinyl-butyl and vinyl-phenyl ether may be produced in good yields on the action of the BF$_3$-etherate. The majority of these polymers consists of solid products. It could further be found that the polymerization of vinyl-cyclohexyl, vinyl-β-decalyl- and vinyl-β-naphthyl ether on the action of benzoyl and nitrile peroxide of the azoisobutyric acid needs a great amount (up to 6%) of the initiator, more heating and more time. The polymer yield is small. Vinyl-cyclohexyl-, vinyl-β-decalyl- and vinyl-phenyl ether can, under the action of benzoyl peroxide, be included into the copolymerization with methyl ethers of the acrylic and methacrylic acid. On this occasion copolymers of divers structures are formed which contain simple vinyl ethers (up to 44%).

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Investigation in the Field of Vinylaryl Ethers. Note 7: Ion- and Radical Polymerization of the Simple Vinyl Ether of Cyclohexanol, β-Decalol and β-Naphthol SOV/62-58-8-12/22

There are 6 tables and 10 references, 8 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy, AS USSR)

SUBMITTED: January 9, 1957

Card 3/3

BOGDANOVA, A.V.

AUTHORS: Shostakovskiy, M. F. Bogdanova, A. V., Ushakova, T. M.

20-3-29/59

TITLE: Vinyl Compounds in the Diene Synthesis (Vinilovyye soyedineniya v diyenovom sinteze). On the Diene Synthesis of Thiovinylether With Cyclopentadiene and Hexachlorocyclopentadiene (O diyenovom sinteze tiovinilovykh efirov s tsiklopentadiyenom i geksakhlortsiklopentadiyenom).

PERIODICAL: Doklady AN SSSR, 1958, Vol. 118, Nr 3, pp. 520-522 (USSR).

ABSTRACT: In an earlier work (reference 1) the authors proved that the simple vinyl ethers ($CH_2=CH-OR$, where R is an alkyl-, aryl- or saturated hydro-aromatic radical) can take part in the diene synthesis with cyclopentadiene and hexachlorocyclopentadiene as a philodiene compound. Other facts from this field follow (references 2,3). The authors continue the systematic investigation of the syntheses mentioned in the title as the thiovinylethers now became accessible (reference 6). The first two mentioned authors (reference 8) reported a greater tendency to the reaction according to the radical mechanism of the vinyl-aryl-ethers than to that of vinyl-alkyl-ethers. The latter also occur more easily in the diene syntheses (reference

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Vinyl Compounds in the Diene Synthesis. On the Diene Synthesis 20-3-29/59
of Thiovinylether With Cyclopentadiene and Hexachlorocyclopentadiene.

1). Also the greater tendency of vinyl-sulfides to free-radical transformations than is the case with their oxygen-analogs was reported (reference 6). Because of this similarity an easier course of the reaction of diene synthesis with thio-vinyl than with vinyl-alkyl-ether could be expected. This was proved by experiment. The reaction mentioned in the subtitle takes place at lower temperatures and with greater yields than is the case with vinyl-alkyl-ethers. The synthesis is accompanied by the formation of bicycloheptane-thioethers as well as of corresponding derivatives of octahydro-naphtalene. The thiovinyl-ethers with hexachlorocyclopentadiene form thio-ethyl- and thiophenyl-hexachlorobicycloheptene. The stepwise course of reaction results from the fact that the isolated bicycloheptene- (I and II)-ethers condense with hexachlorocyclopentadiene forming "dihydraldrine" (VII and VIII)-thioethers. An experimental part (not mentioned as such) with the usual data follows. There are 8 references, 6 of which are Slavic.

AN USSR

ASSOCIATION: Institute for Organic Chemistry imeni N.D. Zelinskiy/(Institut organicheskoy khimii imeni N.D. Zelinskogo Akademii nauk SSSR).

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Vinyl Compounds in the Diene Synthesis. On the Diene Synthesis 20-3-29/59
of Thiovinylether With Cyclopentadiene and Hexachlorocyclopentadiene.

PRESENTED: July 25, 1957, by A.V. Topchiyev, **Academician**

SUBMITTED: July 24, 1957

AVAILABLE: Library of Congress

Card 3/3

AUTHORS: Bogdanova, A. V., Shostakovskiy, M. F., SOV/20-120-2-26/63
Plotnikova, G. I.

TITLE: The Interaction Between Diacetylene and Ethyl Mercaptan, and Some Properties of the Compounds Obtained (Vzaimodeystviye diatsetilena s etilmerkantanom i nekotoryye svoystva poluchennykh soyedineniy)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 2, pp. 301-304 (USSR)

ABSTRACT: Several ethynyl-vinyl-ethers (References 1,3) were produced by synthesis on a diacetylene basis. They are interesting from the point of view of their reactivity and the possibility of producing 1-alcoxy-butadiene-1,3 (Reference 4). It was interesting to investigate the interaction mentioned in the title, as publications on this problem are restricted to one single patent mentioned (Reference 5). The authors obtained this interaction already on slight heating; under the influence of alkali the reaction already begins at room temperature and is accompanied by self-heating. There are

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proofs that the first stage of the interaction under review takes place according to an ionic mechanism. According to the ratio of initial substances and the temperature the reaction follows scheme (I) or is accompanied by the formation of ethynyl-vinyl-thioethyl-ether and a product of the addition of 2 mercaptan-molecules which has a butadiene-structure (scheme (II)). The interaction takes a stepwise course, as the second stage can also take place independently with another mercaptan. The addition of mercaptan to the ethynyl-vinyl-thioethyl-ether may take place under the influence of different reagents (alkali, HCl, radical-initiators and heating). In the last 2 cases the yields of the final product are higher. Thus this addition reaction takes place more advantageously according to a radical mechanism than according to an ionic mechanism. The chief products in this connection are dithio-alkyl-butadiene-1,3. A certain difference of the physical constants and a strong exaltation of the molecular refraction of the addition product of 2 mercaptan-molecules to diacetylene

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The Interaction Between Diacetylene and Ethyl Mercaptan, and Some Properties of the Compounds Obtained SOV/20-120-2-20/63

is apparently explained by the presence of 2 isomeric compounds, others than those with a butadiene-structure also being possible among them. Ethynyl-vinyl-thioethyl-ether reacts with a sublimate solution in alcohol and quantitatively forms ethyl-mercapto-mercury-chloride, an equivalent amount of HCl and apparently ethyl-vinyl-ethyl-ether. Thus this method can be employed for the determination of ethynyl-vinyl-thio-alkyl-ethers. In a kind of experimental part details of the reactions, constants and yields are described under conditions of: a) interaction of diacetylene with ethyl-mercaptan; b) decomposition of ethynyl-vinyl-ether and the product with 2 mercapto -groups by sublimate solution in alcohol (table 2); c) hydrolysis of the latter ether and the 2-mercapto-group product in the presence of sublimate (table 3); d) interaction of ethynyl-vinyl-thioethyl-ether with ethyl-mercaptan and thiophenol (table 4); e) condensation with maleic anhydride.

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The Interaction Between Diacetylene and Ethyl Mercaptan, and Some Properties of the Compounds Obtained SOV/20-120-2-20/63

There are 4 tables and 9 references, 7 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy, AS USSR)

PRESENTED: January 8, 1958, by B. A. Kazanskiy, Member, Academy of Sciences, USSR

SUBMITTED: January 7, 1958

1. Acetylenes--Chemical reactions 2. Thiols--Chemical reactions 3. Ethers--Synthesis 4. Cyclic compounds--Properties

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SOV/62-59-2-21/40

AUTHORS: Shostakovskiy, M. F., Bogdanova, A. V., Krasil'nikova, G. K.

TITLE: Investigation in the Field of Diacetylene Derivatives (Issledovaniye v oblasti proizvodnykh diatsetilena). Communication 2. Some Transformations of Alkoxy-butanes and Preparation of 1-Alkoxy-butadienes-1,3 (Soobshcheniye 2. Nekotoryye prevrashcheniya alkoksibutanov i polucheniye 1-alkoksi-butadiyenov-1,3)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1959, Nr 2, pp 320-326 (USSR)

ABSTRACT: In the present paper the decomposition of the 1,1,3-trioxy-butanes synthesized by the authors and some transformations of products of their thermal decomposition were investigated and a method of synthesis of alkoxy-butadienes-1,3 suggested. A noticeable thermal decomposition of trioxybutane begins at $\sim 200^{\circ}$, butyl alcohol, 1,3-dibutoxy butene-1 (IV), its dimer and the partly polymerizing 1-butoxy butadiene-1,3 (I) being separated. 1-butoxy butadiene-1,3 (I) was also obtained on the thermal decomposition of (IV) which indicates a gradual proceeding of the reaction. 1,3-dibutoxy butene (IV) obtained on the

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Investigation in the Field of Diacetylene Derivatives. Communication 2. Some Transformations of Alkoxy-butanes and Preparation of 1-Alkoxy-butadienes-1,3

decomposition of tributoxy butane may be regarded as a β-substituted vinyl ehter. It really displaces some properties of vinyl ether. On its hydrolysis the alkoxy group in the γ position is split off and vinyl acetaldehyde (VI) formed, it reacts intensely with gaseous hydrogen chloride and forms α-chloro-γ-butoxy-dibutyl ether (VII). On hydrogenation of 1,3-dibutoxy-butene-1 under usual conditions alcohol is split off, but no dibutoxy-butane is formed. On condensation of 1-cyclohexoxy-butadiene-1,3 (II) with maleic acid anhydride the copolymerization of the anhydride with butadiene took place in addition to the formation of an adduct. An apparently regularly built polymer was separated therein. By means of condensation of 1-alkoxy-butadiene-1,3 with croton aldehyde methyl-alkoxy-tetrahydrobenzaldehyde was obtained. In addition to the thermal decomposition of 1,1,3-trialkoxy-butanes the hydrolytic cleavage of these compounds was investigated. On the hydrolysis of 1,1,3-tributoxy-butane (X) and 1,1-dibutoxy-3-phenoxy-butane (XI) 3-butoxy-butanal (XII) and 3-phenoxy-butanal (XIII) were separated. It was found that the hydrolysis on permanent heating is

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Investigation in the Field of Diacetylene Derivatives. Communication 2. Some Transformations of Alkoxy-butanes and Preparation of 1-Alkoxy-butadienes-1,3

accompanied by separation of the alcohol molecule and the formation of vinyl acetaldehyde (XIV). This indicates that in the aldehyde the formation of the alkoxy group in β position is not stable as compared with trialkoxy-butane. In the latter this group is split off only on continuous heating up to 220°. There are 12 references, 4 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: May 31, 1957

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AUTHORS: Shostakovskiy, M. F., Bogdanova, A. V., Chekulayeva, I. A. SOV/153-2-5-23/31

TITLE: Synthesis of New Monomers on the Basis of Acetylene and Diacetylene

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1959, Vol 2, Nr 5, pp 769 - 775 (USSR)

ABSTRACT: From acetylene and diacetylene, as well as from compounds containing a mobile hydrogen, monomers (ether and thioether) with a vinyl-ethyl-vinyl- and a diene group can be obtained. The compounds with mobile hydrogen are in particular: alcohols of various structure, amino alcohols, mercaptanes, phenols, silanols, etc. According to the method of A. Ye. Favorskiy and M. F. Shostakovskiy different types of vinyl compounds with a total formula $CH_2{=}CH{-}XR$ can be obtained where X = O, N, S, Si, and R is an alkyl, aromatic, hydroaromatic, or other radical (Ref 1). The most interesting among the recently obtained unsaturated compounds on acetylene basis, is the vinyl-ether of the amino alcohols (Refs 5, 6). They may be used as initial raw materials for several nitrogen-containing macromolecular products including some with

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Synthesis of New Monomers on the Basis of Acetylene and Diacetylene SOV/153-2-5-23/31

a three-dimensional structure (to be used as ion-exchanger resins). At present diacetylene becomes interesting because it may serve as a starting raw material for various syntheses, and because it has both a scientific and a practical significance. In the laboratory for vinyl compounds of the Institute in which the authors work, the hitherto neglected chemistry of the diacetylenes concerning the interaction with compounds containing mobile hydrogen has been systematically studied. By the reaction of diacetylene with alcohols (Ref 8) and mercaptanes (Ref 10) (constants of the reaction products in Table 1), as well as with amino alcohols (Ref 10) organic compounds with a simple ether (also containing nitrogen) and with a thio-ether-group in the conjugated system of the double and triple linkages (I) can be obtained. Additionally, butadiene-α-ether (II), α,δ-di-thio-ether (III) and mixed α,δ-thio-ether are obtained. The synthesis method of the 1-alkoxy-butadienes-1,3 on the diacetylene and the alcohol basis makes possible the production of several representatives of this class which contain alkyl- and cyclic radicals (Ref 16). The alcohols react with diacetylene under the influence of alkali and on heating. In this reaction, ethyl-vinyl-

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ether (I) and acetals of butin-2-al-4 (see Scheme) are formed. The reaction of the diacetylene with mercaptanes occurs gradually. Unlike the reaction with alcohols, the 2-mercaptane molecule adds itself to the threefold linkage and di-thio-alkyl (or phenyl) of the butadiene-1,3 is formed (Scheme). The compounds produced are highly reactive. The authors recommended a new method of synthesis for the 1-alkoxy-butadiene-1,3 based on partial hydration of the ethyl-vinyl-ether (Table 4). Tables 2,3,5, and 6 list the constants of additional products synthesized. Finally, they established the conditions of the synthesis of vinyl ether of ethanol amines of various structures, and examined their properties. There are 6 tables and 18 references, 13 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii AN SSSR im. N. D. Zelinskogo (Institute of Organic Chemistry of the Academy of Sciences, USSR imeni N. D. Zelinskiy)

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5 (3)

AUTHORS: Shostakovskiy, M. F., Bogdanova, A. V., Plotnikova, G. I. SOV/62-59-8-35/42

TITLE: Letter to the Editor

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 8, p 1505 (USSR)

ABSTRACT: The authors state in this letter to the editor that they were able to synthesize the bis-thiobutadiene into disulfones while preserving the diene structure, starting from the synthesis (Ref 2) for the first time carried out by them of bis(alkylthio)- and bis(arylthio)-butadiene:

$C_6H_5SCH{=}CH-CH{=}CH-SC_6H_5$ (I) $C_6H_5S(O_2)CH{=}CH-CH{=}CH(O_2)SC_6H_5$ (II)

$\xrightarrow{H_2O_2}$

$C_2H_5SCH{=}CH-CH{=}CH-SC_2H_5$ (III) $C_2H_5S(O_2)CH{=}CH-CH{=}CH(O_2)SC_2H_5$ (IV)

Physical data and elementary composition of the two compounds are given. There are 3 references, 2 of which are Soviet.

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Letter to the Editor SOV/62-59-8-35/42

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy, Academy of Sciences, USSR)

SUBMITTED: May 7, 1959

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5 (3)

AUTHORS: Shostakovskiy, M. F., Bogdanova, A. V., SOV/74-28-9-3/7
Krasil'nikova, G. K.

TITLE: Diacetylene and Its Derivatives

PERIODICAL: Uspekhi khimii, 1959, Vol 28, Nr 9, pp 1052-1085 (USSR)

ABSTRACT: In the present paper the authors give a survey on the actual state of the chemistry of acetylene and its derivatives. First, the methods of obtaining these substances are described: the synthesis of the diacetylene derivatives from acetylene and other substituents among them dimerisation of monosubstituents, acetylenes (Refs 1-27); magnesium-organic synthesis (Refs 28-31); dehalogenation of halogen derivatives (Refs 32-37). The methods for obtaining diacetylene can be subdivided into three groups: The syntheses of the first group based on the oxidative dimerisation of metallic salts of the acetylene have, at present, only a historical value (Refs 34, 38-41). The second group comprises methods using the effect of an electric discharge on various hydrocarbons (Refs 42-48). The third group comprises the syntheses based on a gradual splitting-off of elements of the halogen hydracids from the halogen derivatives of the butane series (Refs 49-71). The

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physical properties of diacetylene are treated according to references 31, 32, 39, 40, 45, 75-90, and its explosive properties according to references 39, 42, 47, 91-95. The purification and the analytical determination of acetylene are described according to the references 45, 48, 57, 59, 60, 72, 97-100. Then follows the description of the chemical properties of diacetylene and its derivatives. Diacetylene is the first member of the homologous polyine series with conjugated triple bonds. The separation of first acetylene compounds from vegetable products stems from the year 1892 (Ref 101). Since that time about 50 of such compounds have been obtained. References 17, 18, 102-107 are devoted to a close investigation of the separation and of the synthesis. The informations contained in publications on the properties of diacetylene and its derivatives chiefly refer to the reactions of substitution and addition. Among the substitutions we find the reactions with magnesium-organic compounds (Refs 29, 31-34, 49, 55, 98, 108-115); with metals (Refs 51, 54, 57, 100, 111, 116); with halogens (Ref 31) with carbonyl compounds (Refs 7, 10, 46, 48, 117-122), and with methyl olamines. The field of additions to diacetylene covers: the addition of hydrogen (Refs 123-127, 29, 32, 55), of halogens (Refs 29-32, 128-132); of nitrogen dioxide (Refs 133-135); of water (Refs 66, 99, 136); of alcohols (Refs 48, 57-59, 62, 65-67, 137-140), of glycols (Ref 137); of mercaptans (Refs 62, 141), of amino alcohols (Refs 48, 63, 122); of acrylonitrile (Refs 142-144); of HCN (Ref 145), of thiocyanogen (Ref 146) and of dialkylamines (Ref 48). Furthermore, the oxidative dimerisation of the diacetylenes is described (Refs 1, 4, 6, 7, 17, 18, 29, 33, 101, 105-107, 147, 148). The following section of the paper is devoted to the ethinyl compounds. The physical properties and the spectra of the ethinyl vinyl ester are described, as ascertained by the authors. Among the chemical reactions of the ethinyl vinyl ester the substitutions of acetylene hydrogen and the addition are the most investigated. Substitutions were investigated in reactions with metal (Refs 57, 11), with ketones (Ref 149), and with the magnesium-organic compounds (Refs 150-151). Additions to ethinyl vinyl ester were investigated in reactions with alcohols (Refs 58, 59, 62, 65, 66, 91, 137, 138, 150-153) with mercaptans (Refs 62, 156-158); with water (Refs 57-60, 64, 159); with carbonyl-compounds (Refs 48, 57, 124, 150, 160-162); with

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acetals of acetaldehyde (Refs 163, 164); with bromine (Ref 59). Furthermore, the addition of hydrogen (Refs 59, 158, 165-173) and the dimerisation of ethinyl vinyl ester (Refs 17, 21, 148, 174) were investigated. Finally, ethinyl vinyl thioester (Refs 62, 156-158, 175); ethyl vinyl ester, containing N (Refs 63, 67) and ethinyl vinyl ester, containing Si were produced. The table contains a list of some of the functional diacetylene derivatives. The following Soviet authors are mentioned: V. I. Yegorova, O. M. Kuznetsova, G. I. Plotnikov, I. A. Chekulayeva, L. V. Kondrat'yev, I. I. Strizhevskiy, M. D. Chekhovich, Zh. I. Iotsich, E. S. Shapiro, and L. I. Shmonina. There are 1 table and 176 references, 33 of which are Soviet.

ASSOCIATION: In-t organicheskoy khimii AN SSSR, im. N. D. Zelinskogo (Institute of Organic Chemistry AS USSR imeni N. D. Zelinskiy)

5(3)

AUTHORS: Shostakovskiy, M. F., Bogdanova, A. V., Plotnikova, G. I. SOV/20-124-1-30/69

TITLE: Investigation in the Field of Diacetylene Derivatives (Issledovaniye v oblasti proizvodnykh diatsetilena) Interaction Between Diacetylene and Phenols, Thiophenol and Benzyl Alcohol (Vzaimodeystviye diatsetilena s fenolami, tiofenolom i benzilovym spirtom)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 1, pp 107 - 110 (USSR)

ABSTRACT: The authors had earlier reported on syntheses based on diacetylene with aliphatic and hydro-aromatic alcohols as well as with ethyl mercaptan (Refs 1,2). In order to introduce the corresponding aryl derivatives into the substances available the authors tried to add phenol to the diacetylene. These two substances, however, did not react together according to the usual scheme under conditions suitable for alcohols. The authors wanted to investigate the reaction mentioned in the subtitle. They wanted to eliminate the influence of the benzene nucleus which is caused by the oxygen atom. This

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was expected to be changed by means of the sulfur atom in thiophenol and by the distance of the benzene nucleus from the oxygen. In fact, both reactions proceeded smoothly under gentle conditions (1). The junction of the second molecule of the benzyl alcohol or of thiophenol forms the next stage of the reaction and can also proceed independently. In the case of benzyl alcohol, this stage proceeds according to the ionic mechanism. Butinal-dibenzyl-acetal $CH_3-C\equiv C-CH(OCH_2C_6H_5)_2$ (III) is formed. In the case of thiophenol the second stage of the interaction with diacetylene proceeds mainly under the influence of radical initiators. Dithio derivatives of butadiene-1,3 are formed. Thus, either thiophenol or ethyl mercaptan is added to ethyl vinyl thiophenyl ether yielding dithiophenyl- and thiophenyl-thioethyl-butadiene-1,3 (2), respectively. This reaction is accelerated by KOH, azo-isobutyric acid-nitrile or by increased temperature. The yield of the end products depends on the temperature and on the initiator. Dithiophenyl- and thiophenyl-thioethyl-butadiene-1,3 undergo the diene synthesis with maleic acid anhydride, forming adducts that

Investigation in the Field of Diacetylene Derivatives. SOV/20-124-1-30/69
Interaction Between Diacetylene and Phenols, Thiophenol and Benzyl Alcohol

lose two mercaptan molecules and forming phthalic anhydride (Refs 2,6). An experimental section (not designed as such) ensues. There are 3 tables and 6 references, 4 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

PRESENTED: May 17, 1958, by B. A. Kazanskiy, Academician

SUBMITTED: May 15, 1958

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BOGDANOVA, A.V.

New vinyl ether polymers. Vysokom. soed. 2 no.4:576-580 Ap '60.
(MIRA 13:11)

1. Institut organicheskoy khimii AN SSSR.
(Ethers) (Polymers)

S/062/60/000/007/014/017/XX
B004/B064

AUTHORS: Shostakovskiy, M. F., Bogdanova, A. V., and Ushakova, T. N.

TITLE: Vinyl Compounds in the Diene Synthesis. Communication 3. Synthesis and Properties of the Ethers of the Series of Bicycloheptene and Di-endomethylene Octahydronaphthalene Containing Aromatic Radicals

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 7, pp. 1286 - 1290

TEXT: The present paper continues the authors' investigations on the diene synthesis by means of vinyl compounds of the $CH_2=CH-XR$ type. The authors report on the reactions of cyclopentadiene, and hexachloro cyclopentadiene with vinyl-β-naphthyl-, vinylphenyl-, and vinyl-p-tert-butyl phenyl ether. The condensation of the vinyl aryl ethers with cyclopentadiene proceeds according to the scheme: (1)

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Vinyl Compounds in the Diene Synthesis. Communication 3. Synthesis and Properties of the Ethers of the Series of Bicycloheptene and Di-endomethylene Octahydronaphthalene Containing Aromatic Radicals

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B004/B064

The ratio between the forming adducts may be varied by the initial ratio of the components. As in the case of the vinyl alkyl ethers also with the vinyl aryl ethers the second stage of reaction may be carried out by means of hexachloro cyclopentadiene; ether and dihydraldine result from this reaction: (2). With hexachloro cyclopentadiene the reaction proceeds under the formation of ethers of hexachloro bicycloheptene: (3). These compounds could be easily hydrogenated on the platinum oxide catalyst; the saturated compounds of bicycloheptane or di-endomethylene-decaline resulted. The authors describe the syntheses of: III and VI (2-β-naphtho-oxy-bicyclo-(2,2,1)-heptene-5 and 1,4,5,8-di-endomethylene-2,β-naphthoxy-1,2,3,4,4a,5,8,8a-octa-hydro naphthalene) by reaction of vinyl-β-naphthyl ether with cyclopentadiene in the autoclave at 170°C; II and V (2-p-tert-butyl-phenoxybicyclo-(2,2,1)-heptene-5 and 1,4,5,8-di-endomethylene-2-p-tert-butylphenoxy-1,2,3,4,4a,5,8,8a-octahydronaphthalene under the

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Vinyl Compounds in the Diene Synthesis. Communication 3. Synthesis and Properties of the Ethers of the Series of Bicycloheptene and Di-endomethylene Octahydronaphthalene Containing Aromatic Radicals

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B004/B064

same conditions by reacting vinyl-p-tert-butyl phenyl ether with cyclopentadiene. XI, X, and IX (2-β-naphthoxy-1,4,5,6,7,7-hexachloro bicyclo-(2,2,1)-heptene-5, and 2-p-tert-butyl phenoxy-1,4,5,6,7,7-hexachloro bicyclo-(2,2,1)-heptene-5 and 2-phenoxy-1,4,5,6,7,7-hexachloro bicyclo-(2,2,1)-heptene-5 by reacting the corresponding ethers with hexachloro cyclopentadiene at 110 - 120°C in the test glass with reflux condenser. VIII (1,4,5,8-di-endomethylene-2-β-naphthoxy-5,6,7,8,9,9,-hexachloro-1,2,3,4,4a,5,8,8a-octahydronaphthalene (dihydraldine)) was obtained from compound III and hexachloro cyclopentadiene at 120 - 135°C. Crystalline derivatives of these compounds were obtained by means of phenyl azide. There are 2 tables and 9 references: 5 Soviet, 1 US, and 3 German.

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Vinyl Compounds in the Diene Synthesis. Communication 3. Synthesis and Properties of the Ethers of the Series of Bicycloheptene and Di-endomethylene Octahydronaphthalene Containing Aromatic Radicals

S/062/60/000/007/014/017/XX
B004/B064

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: December 29, 1958

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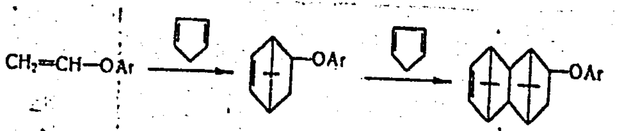
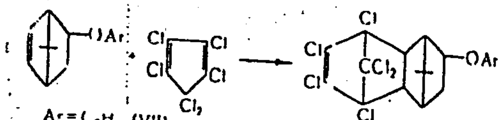
S/062/60/000/007/014/017/XX
B004/B064



Ar=C_6H_5 (I)
Ar=$C_6H_4C_4H_9$-tert. ~~трет~~ (II)
Ar=$C_{10}H_7$-β (III)

Ar=C_6H_5 (IV)
Ar=$C_6H_4C_4H_9$-tert ~~трет~~ (V)
Ar=$C_{10}H_7$-β (VI)

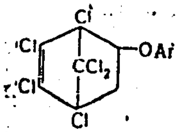
(1)



Ar=C_6H_5 (VII)

Ar=$C_{10}H_7$-β (VIII)

(2)



(3)

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Ar=C_6H_5 (IX)
Ar=$C_6H_4C_4H_9$-tert ~~трет~~ (X)
Ar=$C_{10}H_7$-β (XI)

86415
S/062/60/000/008/030/033/XX
B013/B055

53620 1153 1306 2209

AUTHORS: Shostakovskiy, M. F., Bogdanova, A. V., and Plotnikova, G.L.

TITLE: On the Diene Synthesis of 1,4-Dithioethyl 1,3-Butadiene With Cyclopentadiene

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 8, pp. 1514-1516

TEXT: This is a brief communication on the diene synthesis of 1,4-dithioethyl 1,3-butadiene with cyclopentadiene. The ratio of the initial substances and the time or reaction were varied in the experiments. The synthesis proceeds by stages, addition products being formed which contain varying numbers of cyclopentadiene molecules per dithioethyl-butadiene molecule. The ratio of these addition products depends on the ratio of the initial substances and duration of heating. Three addition products were separated from the reaction mixture. The first, formed by reaction of one cyclopentadiene molecule with one molecule of the diene investigated, reacted readily with an alcoholic sublimate solution with quantitative formation of ethylmercapto mercury chloride and HCl, which

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On the Diene Synthesis of 1,4-Dithioethyl 1,3-Butadiene With Cyclopentadiene

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can be easily titrated with 0.1 N NaOH. This indicates the presence of a vinylthioethyl group. (I) may therefore be assigned the structure of a 2-thioethyl 3-vinylthioethyl bicyclo(2,1,2)-5-heptene. The second product (II) contains two cyclopentadiene molecules per dithioethyl-butadiene molecule. Neither it nor the third product react with alcoholic sublimate solution. The second product may be regarded as bis[2-thioethyl-bicyclo (2,1,2)-5-heptene]. According to its composition and constants, compound (III) is [1,4,5,8-diendomethylene-2-thioethyl-3-(2'-thioethyl)-bicyclo (2',1',2')-5'-heptene]. The preparation of analytically pure samples was rendered very difficult owing to the formation of cyclopentadiene polymers which are very soluble in the addition products. The 1,4-dithioalkyl(aryl) 1,3-butadienes prepared from diacetylene, which give the typical diene reaction with maleic anhydride, exhibit dienophilic properties in the diene synthesis with cyclopentadiene. There are 1 table and 6 Soviet references.

X

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: January 19, 1960

Card 2/2

SHOSTAKOVSKIY, M.F.; BOGDANOVA, A.V.; PLOTNIKOVA, G.I.

Synthesis of mercaptals and dimercaptals of different aldehydes from corresponding acetals. Izv.AN SSSR Otd.khim.nauk no.8:1524 Ag '60. (MIRA 15:5)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Mercaptals)

SHOSTAKOVSKIY, M.F.; BOGDANOVA, A.V.; PLOTNIKOVA, G.I.; DOLGIKH, A.N.

Method of synthesizing merdaptoles and tritiated esters of orthoformic acid. Izv. AN SSSR Otd. khim. nauk no.10:1901 O '60. (MIRA 13:10)

1. Institut organicheskoy khimii im. N.D.Zelinskogo Akademii nauk SSSR.

(Orthoformic acid)

SHOSTAKOVSKIY, M.F.; BOGDANOVA, A.V.; USHAKOVA, T.M.; LOPATIN, B.V.

Vinyl compounds in diene synthesis. Stereospecific orientation of the diene synthesis of vinyl aryl ethers condensed with cyclopentadiene in relation to the temperature. Dokl.AN SSSR 132 no.5:1118-1121 Je '60. (MIRA 13:6)

1. Institut organicheskoy khimii im. N.D.Zelinskogo Akademii nauk SSSR. Predstavleno akademikom B.A. Kazanskim.
(Ethers) (Cyclopentadiene)

BOGDANOVA, A.V.; SHOSTAKOVSKIY, M.G.; PLOTNIKOVA, G.I.

Synthesis of unsaturated ether acetals, thioether acetals, and mercaptals. Dokl. AN SSSR 134 no.3:587-590 S '60. (MIRA 13:9)

1. Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk SSSR. 2. Chlen-korrespondent AN SSSR (for Bogdanova).
(Acetals) (Mercaptals)

SHOSTAKOVSKIY, M.F.; BOGDANOVA, A.V.; USHAKOVA, T.M.; LOPATIN, B.V.

Vinyl compounds in the diene synthesis. Report No. 4: Comparative characteristics of the dienophilic activity of vinyl and thiovinyl ethers, and optical study of the adducts obtained. Izv. AN SSSR. Otd. khim. nauk no. 1:120-127 Ja '61. (MIRA 14:2)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Ethers)

BOGDANOVA, A.V.; SHOSTAKOVSKIY, M.F.; PLOTNIKOVA, G.I.

Stereo-oriented syntheses based on diacetylene, and isomeric conversions of 1,4-bis (arylthio)-1,3-butadienes and their disulfones. Dokl. AN SSSR 136 no. 3:595-598 Ja '61. (MIRA 14:2)

1. Institut organicheskoy khimii imeni N.D. Zelinskogo AN SSSR.
2. Chlen-korrespondent AN SSSR (for Shostakovskiy).
(Butadiyne) (Butadiene) (Sulfones)